

CASCADES LEISURE CENTRE
7313-FUR-XX-XX-RP-0001
STRUCTURAL SURVEY
NOVEMBER 2022

This report has been prepared for the sole benefit, use and information of the Client, for the purposes described and the liability of Furness Partnership Ltd. in respect of the information contained within the report will not extend to any third party.

Revision	Date	Issue Status	Prepared by	Checked by
P01	17.11.22	FOR INFORMATION	JH	MF
P02	23.11.22	FOR INFORMATION	JH	MF
P03	24.11.22	FOR INFORMATION	JH	MF

Contents

1	Introduction	1
2	Site and Building Overview.....	2
3	Observations	4
3.1	Reception, Offices & Changing Rooms	4
3.2	Squash Courts 1&2, Studio & Stores.....	5
3.3	Squash Courts 3 to 6, Studio & Stores.....	6
3.4	Sports Hall & Fitness Studios	7
3.5	Pool Hall Extension	9
3.5.1	Pool Hall Enclosure	9
3.5.2	Pool Plantroom & Undercroft	10
3.5.3	Wet Change, Café, Creche & Spa.....	11
3.5.4	External Walls	11
4	Condition Assessment & Repairs	12
4.1	Condition Overview.....	12
4.2	Outline Scope of Repairs	13
5	Demolition	14
	Appendix A – Site Photos.....	16

1 Introduction

- 1.0.1 Furness Partnership have been instructed to undertake a visual structural condition survey of the existing Cascades Leisure Centre facility in Gravesend, Kent.
- 1.0.2 The structural survey has been instructed as a local validation requirement in support of a planning application for the proposed redevelopment of the site.
- 1.0.3 The proposed development involves demolition of the existing Cascades Leisure Centre building and construction of a new build leisure centre on the site.
- 1.0.3 The objective of the survey is to undertake a visual inspection of the existing building structure in order to establish and advise in respects of the following;
- Form and condition of the existing building structure
 - Apparent or potential structural defects with recommendations for remediation
 - Outline methodology for demolition of the existing building as part of the proposed redevelopment scheme.
- 1.0.4 The survey is non-destructive, non-intrusive visual inspection and was limited to elements of structure and building fabric which were accessible and visible at the time of the inspection. This typically includes, but was not limited to, the following;
- Structural framing
 - Suspended floor and/or roof construction
 - Pool tank, plant room and undercroft
 - Load-bearing and partition walls
 - External walls and cladding
- 1.0.5 The scope of the inspection and survey detailed within this report is limited to the existing leisure centre building.
- 1.0.5 The site inspection was carried out on Tuesday 1st November 2022. The visit was accompanied by Steve Druggitt who oversees building operations and maintenance at the facility.

2 Site and Building Overview

2.0.1 Cascades Leisure Centre is located on Thong Lane, Gravesend DA12 4LG (Fig. 1).



Figure 1: Building Location

- 2.0.2 The site covers an area of approximately 4.5ha and comprises of the leisure centre building, outdoor tennis courts, soft landscaped recreational areas, childrens play area, car parking and Regans Bar & Café.
- 2.0.3 The site is bound to the west by Thong Lane with residential area beyond. Immediately to the north is the Gravesend Golf Centre, model railway and site overflow carpark. Immediately to the east there are two indoor tennis domes and sports pitches. To the south is the Southern Valley golf club and access road.
- 2.0.4 The leisure centre building is located on the site of a disused airfield. Based on historical mapping, the leisure centre building is thought to have first been constructed between 1970 & 1981 (Fig. 2).

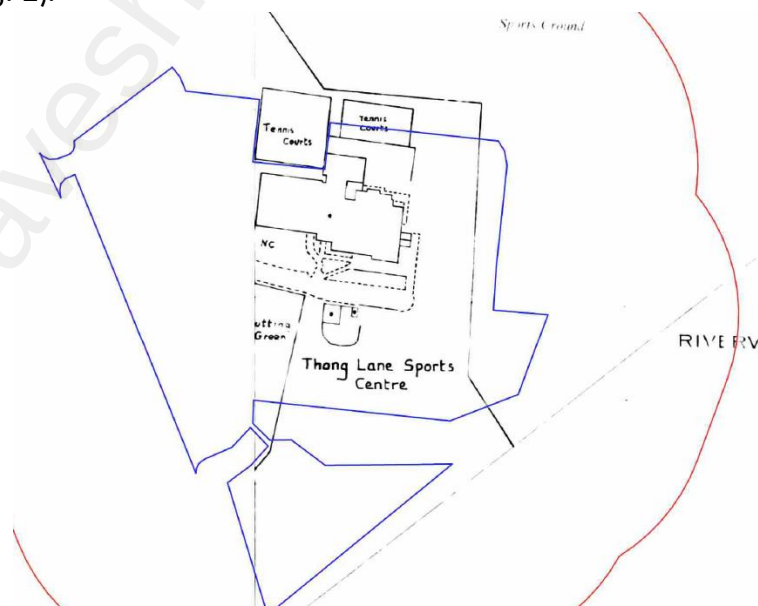


Figure 2: Extract from Groundsure report of recordmapping (1981)

The leisure centre is known to have undergone a later redevelopment and significant extension with construction of the pool hall. Based on historical mapping this is thought to have been completed between 1982 & 1990, by which time the building and site layout closely matches that of the present day (Fig. 3).

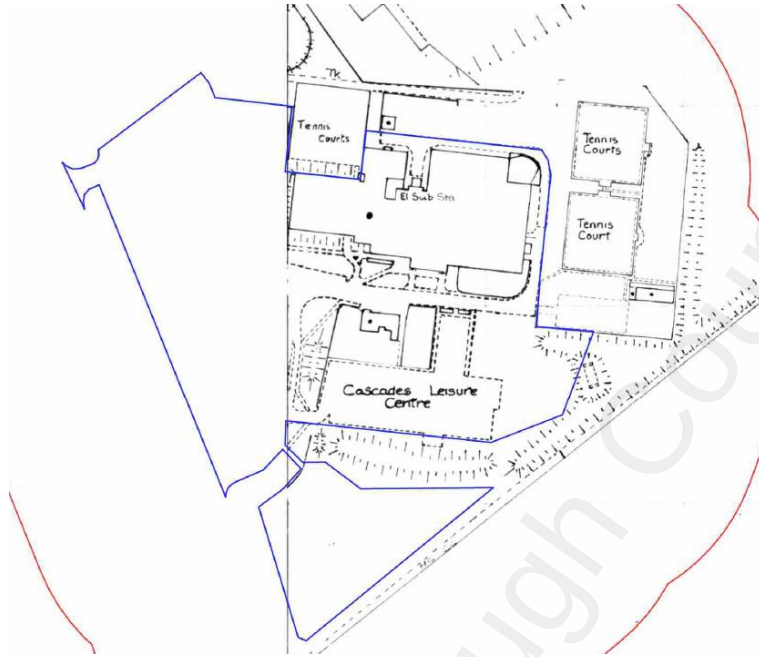


Figure 3: Extract from Groundsure report of recordmapping (1990)

- 2.0.3 Based on the available record information, the original 1970's construction is thought to include the central flat roof portion of the building and the sports hall and fitness studios to the west.

The 1980's extension is thought to include the pool hall with leisure pools and associated facilities including pool plant, spa, wet change, creche and café.

The building regions associated with each period of construction are thought to be approximately as indicated below (Fig. 5).



Figure 5: Building construction period demises

- 2.0.5 The building is known to contain sources of Asbestos (or ACM's) which have been identified through asbestos management surveys and there is an asbestos management plan in place.

3 Observations

- 3.0.1 The following section summarise observations made during the inspection relating to the building structure and fabric. Photographs from the inspection are included in Appendix A.

3.1 Reception, Offices & Changing Rooms

- 3.1.1 The single-storey, flat roof area at the centre of the original building contains the reception area, staff offices, dry change and sports changing rooms (Fig. 4).



Figure 4: Reception, offices & changing rooms

- 3.1.2 The roof construction to these areas is typically enclosed within ceiling voids but was inspected by locally removing ceiling tiles and in areas where exposed including cupboards and sports changing rooms.
- 3.1.3 The soffit of the flat roof construction in inspected areas typically comprises of painted fibrous boards or planks with exposed metal plate 'ribs' at regular spacing.
- 3.1.4 The exposed ribs are assumed to be the bottom flange of painted steel sections (T or I sections) which span between structural framing for support of infill panels as part of a proprietary roof construction system.
- 3.1.5 The nature and details of the soffit boards and overlying roof build-up are unknown. Where locally observed without a painted coating, within the ceiling void of the disabled toilets in the reception area, the untreated soffit appears to be wood fibre board. This may be indicative of woodwool roof slab construction which is known to be deleterious material and is a potential structural defect.
- 3.1.6 Some instances of localised damage were observed to the exposed rib and board soffit in the sports changing rooms. These include cracking and spalling of the soffit board, and rust staining to surface of ribs.
- 3.1.6 The nature and condition of the roof covering are unknown but there is evidence of historic water damage to ceilings and soffits which may have been caused by water ingress due to damaged or failed waterproofing on the flat roof.
- 3.1.7 The vertical structural framing is not evident but is assumed to comprise of load-bearing brickwork walls. There is no evidence of any structural steelwork framing forming part of the primary structure.

- 3.1.8 The lateral stability system is not evident but is assumed to comprise of diaphragm action of roof deck and masonry shear walls.
- 3.1.9 The inspected areas of internal walls were generally observed to be in good condition with limited defects.
- 3.1.10 The external walls are thought to be cavity wall construction comprising of load-bearing brickwork inner skin and facing brickwork outer skin.
- 3.1.11 The inspected areas of the external walls were found to be in sound condition but with some localised defects including cracking of internal wall plaster which is indicative of some historic settlement and mortar bed joint loss to external facing brickwork.

3.2 Squash Courts 1&2, Studio & Stores

- 3.2.1 The two-storey, flat roof area of the original building immediately adjoining the main hall contains 2No. squash courts (courts 1&2), first floor studio & lower ground store rooms (Fig. 6).

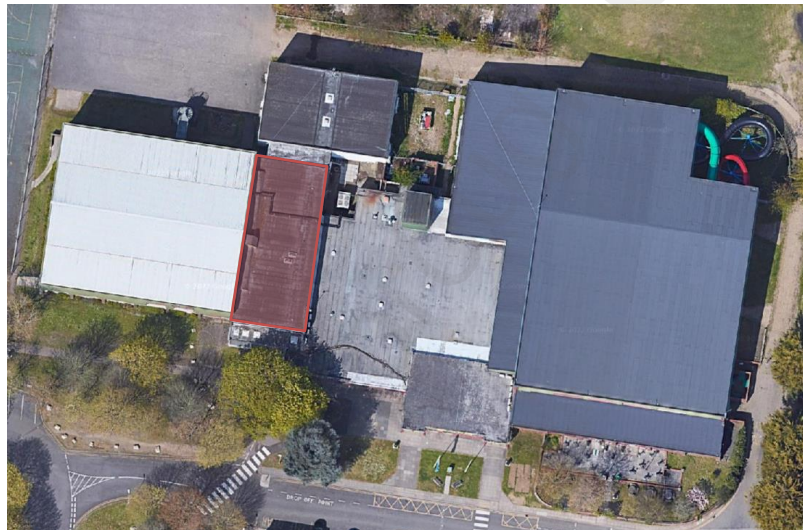


Figure 6: Squash Courts 1&2

- 3.2.2 This area has a reduced ground floor level with ramped and stepped access down from the reception area ground level. There is a part basement beneath the squash courts which contains the lower ground store rooms.
- 3.2.3 The squash courts comprise of double height spaces with adjacent corridors over two-levels for access at ground floor and viewing gallery at first floor.
- 3.2.4 The roof construction above the squash courts is enclosed above the suspended ceiling but was inspected in an adjacent store cupboard by locally removing ceiling tiles. The roof construction in the inspected area comprises of fabricated steel trusses supporting wood fibre soffit boards with metal edge trim. The exposed wood fibre soffit was damaged with underlying fibrous material exposed.
- 3.2.5 The nature and details of the soffit boards and the overlying flat roof build-up are unknown but the wood fibre soffit may be indicative of woodwool roof slab construction which is known to be deleterious material and is a potential structural defect.
- 3.2.6 Exposed painted structural steel columns and beams are visible at first floor level between the corridor gallery and the rear of the squash court. These are assumed to be part of the primary structural framing.

- 3.2.7 The exposed steelwork elements were observed to be in good condition with no apparent defects, although it is noted that close inspection of the roof structure was not possible due to restricted access.
- 3.2.8 The lower ground floor area below the squash courts contains store rooms. The suspended ground floor construction is typically enclosed above the boarded soffit but was locally inspected above a missing section of boarding. The inspected area of floor construction comprises of timber joists with timber battens and boards over.
- 3.2.9 The vertical structural framing supporting the roof and floor construction is not evident but is assumed to comprise of steel columns encased within perimeter walls and/or loadbearing masonry walls.
- 3.2.10 The lateral stability system is not evident but is assumed to comprise of diaphragm action of the roof deck and masonry shear walls.
- 3.1.11 The inspected areas of internal walls were generally observed to be in good condition with limited defects.
- 3.1.12 The external wall elevations of this block were largely inaccessible but external wall construction is thought to be cavity wall construction comprising of internal masonry and outer skin of rendered masonry with areas of timber panelling. The inspected areas of external elevations were found to be in poor condition with cracking to external render and loose timber panelling.

3.3 Squash Courts 3 to 6, Studio & Stores

- 3.3.1 The two-storey, flat roof area adjoining the block described in the previous section contains 4No. squash courts (courts 3-6), studio & store rooms (Fig. 7).



Figure 7: Squash Courts 3-6

- 3.3.2 This area of the building has a reduced ground floor level to match the adjacent block. There is a part basement beneath the squash courts which contains the lower ground studio and storage rooms.
- 3.3.3 The roof construction above the squash courts is fully exposed and comprises of downstand timber beams supporting painted concrete soffit assumed to be precast concrete planks.
- 3.3.4 The nature and details of the concrete planks and the overlying flat roof build-up are unknown.

- 3.3.5 The exposed elements of the roof construction were observed to be in good condition with no apparent defects, although it is noted that close inspection was not possible due to restricted access.
- 3.3.6 The lower ground floor areas below the squash courts contains a fitness studio and store rooms. The suspended ground floor construction is enclosed above the solid ceiling but with downstand beams and internal columns. The nature and detail of the floor structure are not evident but it is assumed to be insitu concrete or steel framing.
- 3.3.7 The vertical structural framing supporting the roof and floor construction is not evident but is assumed to comprise of steel columns encased within perimeter walls and/or loadbearing masonry walls.
- 3.3.8 The lateral stability system is not evident but is assumed to comprise of diaphragm action of the roof deck and masonry shear walls.
- 3.3.9 The inspected areas of internal walls were generally observed to be in good condition with limited defects.
- 3.3.10 The external wall construction at lower ground level is thought to be cavity wall construction comprising of concrete blockwork inner skin and brickwork outer skin. The inspected areas of external elevations were found to be in sound condition but with numerous defects including damaged brickwork, mortar bed joint loss and lime leaching.
- 3.3.11 The external wall construction above ground floor level comprises of vertical jointed panels thought to be precast concrete. The inspected areas of external elevations were found to be in sound condition but with some localised defects including cracking and spalling of concrete.

3.4 Sports Hall & Fitness Studios

- 3.4.1 The main hall is located at the west end of the original building and contains the sports hall and fitness studios on two levels (Fig. 8).



Figure 8: Sports Hall & Fitness Suites

- 3.4.2 The sports hall roof structure is fully exposed and comprises of steel beam rafters spanning the full width of the hall. The steel beams are pitched to form the duopitch roof profile and have haunched end and ridge connections indicative of a portal frame structure.

- 3.4.3 Cold rolled steel Z-purlins span between trussed rafters to support the profiled metal structural roof-deck. Detail of the roof build-up is unknown but is assumed to be typical warm roof system comprising of insulation and waterproof membrane.
- 3.4.4 The rafter beams are supported by structural steel columns built into perimeter walls. Columns are typically enclosed behind blockwork inner skin of external walls with vertical movement joints in blockwork coincident with column locations.
- 3.4.5 The lateral stability system at roof level comprises of plan steel bracing. The vertical stability system at roof level is assumed to be a combination of portal frame action and vertical steel bracing built into perimeter cavity walls or diaphragm action of masonry shear walls.
- 3.4.6 The exposed elements of the sports hall structure were observed to be in good condition with no apparent defects, although it is noted that close inspection was not possible due to restricted access.
- 3.4.7 The fitness studios are located in the first two bays of the main hall building with Studio 1 on the ground floor and Studio 2 on the first floor.
- 3.4.8 The roof structure above Studio 2 is enclosed above the suspended ceiling and so is not evident, but is assumed to be similar to that observed in the sports hall adjacent.
- 3.4.9 The soffit of the first-floor structure is partially exposed and visible in Studio 1. The floor construction comprises of profiled metal deck supported by downstand beams. The deck construction has a re-entrant 'dovetail' profile and is assumed to be composite concrete slab supported by fireboard encased steel beams.
- 3.4.10 The first-floor structure is supported by columns built into perimeter walls and internal columns. The internal columns rung hollow and so are assumed to be steel columns encased with fireboard.
- 3.4.11 The exposed elements of the studios structure were observed to be in good condition with no apparent defects, although it is noted that close inspection was not possible due to limited access.
- 3.4.12 The external walls construction typically comprises of concrete blockwork with external profiled metal sheet cladding at high level and localised brickwork piers encasing perimeter steel columns. The inspected areas of external elevations were found to be in sound condition but some localised defects to brickwork including mortar bed joint loss and lime leaching.
- 3.4.13 The perimeter steel columns appear to be encased by brickwork piers external to the building envelope. The protection and condition of encased steelwork is unknown but there is no evidence of corrosion of underlying steelwork.

3.5 Pool Hall Extension

- 3.5.0 The pool hall extension is located at east end of the building and is thought to have been constructed in circa 1988. This area of the building contains the leisure pool, pool plant, wet change and other facilities including café, spa and creche (Fig. 9).



Figure 9: Pool Hall

3.5.1 Pool Hall Enclosure

- 3.5.1(1) The pool hall roof structure is fully exposed and comprises of steel truss rafters spanning the width of the hall. The roof trusses are tapered warren trusses fabricated from hot-rolled steel sections with UC section top chord pitched to form the duopitch roof profile. Secondary steelwork members provide lateral restraint by connecting truss bottom chords
- 3.5.1(2) The profiled metal structural roof-deck spans directly between truss rafters. Detail of the roof build-up is unknown but is assumed to be typical warm roof system comprising of insulation and waterproof membrane. According to reporting from site staff the roof deck soffit in the pool hall has recently been re-painted.
- 3.5.1(5) The lateral stability comprises of plan steel bracing at roof level and vertical steel bracing built into perimeter cavity walls as observed in the plant room.
- 3.5.1(4) The roof trusses are supported by structural steel columns which are typically built into perimeter walls or fully encased and tiled where located on the pool surround. There is one CHS column which is exposed in the pool store room and was observed to be in reasonable condition but for surface staining assumed to be caused by leaching of chlorides.
- 3.5.1(3) The exposed elements of pool hall roof structure were observed to be in good condition with no apparent defects, although it is noted that close inspection was not possible due to restricted access.
- 3.5.1(6) The pool store room, in which the exposed CHS column is located, comprises of a precast concrete capping slab supported by load-bearing concrete blockwork. Steel trimming and insitu concrete infill is present where the CHS column passes through the concrete capping slab. The infill concrete is in poor condition with extensive surface staining and the trimming steelwork has significant surface corrosion.

- 3.5.1(7) The leisure pool has 2No. flume slides which are predominantly outside of the building envelope. The flume slides are accessible from the pool surround via an internal steel stair tower. The stair tower steelwork was found to be in poor condition with extensive surface corrosion. The base of the RHS post at pool surround level was found to be in very poor condition with significant corrosion resulting in full section loss locally with visible hole in section wall.
- 3.5.1(8) The pool tank and pool surround slab were observed to be in good condition with no apparent defects, although inspection was limited to tiled finishes.

3.5.2 Pool Plantroom & Undercroft

- 3.5.2(1) The pool plantroom is located adjacent to the pool hall enclosure at lower ground level and is accessible via stepped access from the pool surround. The pool plant contains filtration plant, pumps, chemical dosing, and other associated plant equipment.
- 3.5.2(2) The roof structure above the pool plant room is fully exposed and comprises of pitched steel rafter beams supporting cold-rolled steel Z-channel purlins which support the unpainted metal structural roof deck.
- 3.5.2(3) The roof beams are supported by structural steel columns which are built into perimeter walls and encased with what is assumed to be fireboard.
- 3.5.2(4) The lateral stability system comprises of plan steel bracing at roof level and vertical steel bracing which was observed to the wall separating the pool hall and in the chemical store.
- 3.5.2(5) The exposed elements of the steel superstructure were typically observed to be in good condition with exception of some surface corrosion to structural steelwork, most notably the vertical bracing in the chemical store. It is noted that close inspection was not possible due to restricted access.
- 3.5.2(6) There are a variety of secondary structural elements within the plant room for support of plant, access platforms and cappings. Some of the secondary structural elements were found to be in poor condition with significant extensive surface corrosion, although these are outside of the scope of this survey.
- 3.5.2(7) The pool plant room provides stepped access to the pool undercroft which is located under the raised platform at the north end of the pool tank. The undercroft contains the wave machine hydraulics, flume pumps and pool lights.
- 3.5.2(8) The undercroft provides access to the rear face of the pool tank wall which is constructed from reinforced concrete. The pool tank walls were found to be in sound condition but with some localised defects associated with poor workmanship and pool water ingress. Such defects were commonly observed in the vicinity of pool lights with evidence of historic pool water ingress and resulting degradation of concrete surface.
- 3.5.2(9) The undercroft base slab was found to be in very poor condition with extensive spalling and cracking of the concrete surface. Where exposed the steel reinforcement was found to be in very poor condition with severe corrosion and section loss. This is thought to have been caused by prolonged exposure to water and highly corrosive environment. During the inspection water ponding was observed adjacent to the pool tank wall beneath pool pumps/pipework. The cause of the water ingress is thought to be associated with faulty pipework.

- 3.5.2(10) Concrete plinths for support of decommissioned plant were observed to be in very poor condition with extensive cracking thought to have been caused by corrosion of cast-in or encased steelwork.

3.5.3 Wet Change, Café, Creche & Spa

- 3.5.3(1) The remaining areas of the pool hall extension contains the wet change, café, kitchens, creche and offices. There is a spa and sauna located at first floor level which provides access to a small elevated poolside terrace.
- 3.5.3(2) The roof construction in these areas is typically enclosed above the suspended ceiling but was inspected in the wet change and back of house areas by locally removing ceiling tiles. The structure in inspected areas comprises steel framing supporting cold-rolled steel Z-channel purlins which support the unpainted metal structural roof deck. This is assumed to be similar to that observed in the pool plant room.
- 3.5.3(3) The inspected areas of roof structure were generally observed to be in good condition with exception of some localised corrosion to the roof deck in store rooms adjacent to the sauna at first floor level.
- 3.5.3(4) The first-floor structure above the café and kitchens is generally enclosed above the solid ceiling but was partially visible from the store room where a section of ceiling had been locally removed. The slab construction appears to be precast concrete planks. There are some signs of water damage to the slab soffit, suspended ductwork within the ceiling void and timber ceiling joists.

3.5.4 External Walls

- 3.5.4(1) The external walls are assumed to be cavity wall construction typically comprising of internal blockwork with external skin of blockwork or brickwork at low level and profiled metal sheet cladding at high level with localised brickwork piers encasing perimeter steel columns.
- 3.5.4(2) The external masonry was observed to be in sound condition but with some localised defects including step cracking to blockwork and mortar bed joint loss.
- 3.5.4(3) The external metal sheet cladding was observed to be in sound condition but with some localised surface rust staining.
- 3.5.4(4) The perimeter steel columns appear to be encased by brickwork piers external to the building envelope. The protection and condition of encased steelwork is unknown but there is no evidence of corrosion of underlying steelwork.

4 Condition Assessment & Repairs

4.1 Condition Overview

- 4.1.1 The existing building is considered to be of robust construction and in reasonable condition considering its age. Inspection of the structure was somewhat limited due to ceiling and wall finishes, and so full detail of structural arrangements is unknown. Further intrusive investigation will be necessary prior to any structural alterations or demolition works to determine full details of structural arrangements and to develop an appropriate methodology for demolition.
- 4.1.2 The inspected areas of the building structure were typically found to be in good condition but with a number of localised defects and potential presence of deleterious materials which require further investigation and/or remediation for prolongation of the buildings serviceable design life.
- 4.1.3 The observed structural defects are most notably the corrosion of steelwork and reinforced concrete in areas exposed to a highly corrosive pool environment. This includes the flume stair tower steelwork and reinforced concrete undercroft base slab which will require remediation for prolongation of serviceable design life.
- 4.1.4 There is no evidence of significant corrosion or damage to the steel frame superstructure. It is noted that steelwork elements built into external cavity walls could not be inspected and are more susceptible to corrosion, however there are no indicators of corrosion of encased steelwork.
- 4.1.5 The wood fibre soffit boards observed to the flat roof area of the original building may be indicative of woodwool slab construction. Woodwool boards were commonly used as permanent shuttering for concrete roof slabs but are known to cause concrete defects such as with honeycombing and voids due to its compressibility and absorption. This can lead to corrosion of exposed steel reinforcement over time which may eventually lead to structural failure. Further investigation would be necessary to determine form and condition of flat roof slab construction for prolongation of serviceable design life.
- 4.1.6 The flat roof areas may be susceptible to leaking and represent an ongoing maintenance issue. The current condition of the waterproofing membrane and roof drainage is unknown but there is evidence of historic water damage internally which may be associated with localised failure of the roof waterproofing.
- 4.1.7 The external wall construction was generally found to be in sound condition but with numerous instances of damage to and degradation of external masonry and render. Notable defects include step cracking caused by historic building movement and mortar bed joint loss caused by prolonged exposure to rainwater runoff. Repairs to damaged areas of the masonry façade will be necessary for prolongation of serviceable design life.
- 4.1.8 The presence and location of asbestos containing materials is limited to that which is detailed within the asbestos management survey. A full refurbishment and demolition asbestos survey is recommended prior to undertaking any structural repairs, alterations or demolition works.

4.2 Outline Scope of Repairs

- 4.2.1 The following sections provides a brief summary of recommended scope for structural repairs and further investigation works necessary to prolong the serviceable design life of the building.
- 4.2.2 Methodology for treatment and repair of corroded steelwork including flume stair tower steelwork is as follows;
- Mechanical cleaning of existing steelwork back to bare metal.
 - Inspection of bare steelwork to assess extent of section loss and carry out repair or replacement of steelwork subject to excessive section loss. Steelwork repairs to require site cutting and welding of steelwork.
 - Apply corrosion protection painted coating to all steelwork with base coat of zinc phosphate epoxy primer and topcoat of epoxy micaceous iron oxide.
 - Provision of concrete encasement (min 100mm cover) to all exposed steelwork up to 300mm above pool surround level.
- 4.2.3 Methodology for treatment and repair of damaged reinforced concrete including the pool undercroft base slab is as follows;
- Mechanical preparation of damaged concrete involving scabbling back to sound concrete.
 - Treatment of exposed reinforcement by mechanical cleaning back to bare metal.
 - Inspection of bare steelwork to assess extent of section loss. Any steelwork subject to excessive section loss to be removed and replaced with equivalent reinforcement lapped with exposed sound reinforcement.
 - Apply corrosion protection painted coating of zinc phosphate epoxy primer to all retained reinforcement.
 - Apply cementitious repair mortar to reinstate concrete (Fosroc Renderoc or similar).
- 4.2.4 Methodology for repair of damaged external brickwork is as follows;
- Repointing of masonry bed joints in areas subject to excessive mortar loss
 - Monitoring of cracks to determine if movement is ongoing or stabilised. Cracks to be repaired by repointing or crack stitching using helibar reinforcement as appropriate.
- 4.2.5 Methodology for further investigation to determine nature and condition of the wood fibre soffit flat roof construction is as follows;
- Opening-up works to locally remove the wood fibre soffit board and expose soffit of overlying roof structure.
 - Where overlying structure is found to be concrete, further investigation will be required to determine the condition of concrete and reinforcement. This will include core samples and removing concrete cover to expose reinforcement.
 - Subject to condition of concrete and reinforcement, roof slab may need to be replaced or require further remedial works.

5 Demolition

- 5.0.1 The proposed redevelopment scheme includes demolition of the existing leisure centre building. The following section outlines specific observations and considerations with respects to demolition of the existing building.
- 5.0.2 The demolition of the existing building is planned to commence following completion of the new leisure centre building so demolition strategy and methodology should be considered in context of the adjacent development following further design development.
- 5.0.3 Prior to commencement of works all services should be identified with reference to available site investigation information, topographical and utility surveys and with additional investigation works undertaken as necessary. All services should be disconnected, diverted, or removed subject to prior agreement with service providers.
- 5.0.4 Prior to commencement of works a full intrusive demolition asbestos survey is to be undertaken to identify any potential sources of asbestos and implement an appropriate strategy for safe removal and disposal.
- 5.0.5 Prior to commencement of works a full structural review of the existing structure should be carried out to confirm details of existing structure and structural arrangements including, but not limited to;
- Support conditions for existing roofs, floors, and walls.
 - Lateral stability systems including potential contribution of roof deck and wall panels.
 - Structural interdependencies between adjoining building structures.
- 5.0.6 Prior to demolition the contractor is to provide a detailed method statement and sequence of works including requirement for any temporary supports such as propping or scaffold support to ensure structural stability is maintained throughout.
- 5.0.7 Prior to demolition the contractor is to erect any necessary hoarding or additional public protection measures around the site.
- 5.0.8 Prior to demolition a soft strip of the building should be undertaken to remove any loose fixtures and fittings and strip the building back to its base shell.
- 5.0.9 Prior to demolition the contractor is to erect crash decks and install fall arrest netting as appropriate.
- 5.0.10 Demolition should generally be carried out via top-down sequence starting with the roof deck then followed by external walls and steel frame superstructure.
- 5.0.11 Special consideration should be given to long span elements including roof trusses and beams in the pool and sports hall. Hand cutting tools should be utilised to break down larger elements into more manageable sections and steel sections should be dismantled about connections and splices where possible.
- 5.0.12 Demolition of ground floor and concrete substructure should be carried out by sawcutting to avoid using mechanical breakers and limit noise and vibration where possible. Where unavoidable, noise and vibration protocols should be implemented during these works.

- 5.0.13 As part of the site-specific construction and demolition waste management plan all debris should be separated and stored on site for licenced removal to local facilities subject to WAC testing where necessary.
- 5.0.14 It should be noted that the above recommendations are provided for information only based on limited visual structural inspection. The demolition contractor will be responsible for carrying out an independent assessment and preparing method statements and temporary works design prior to commencement of works.

Appendix A – Site Photos



Figure 10: Reception area

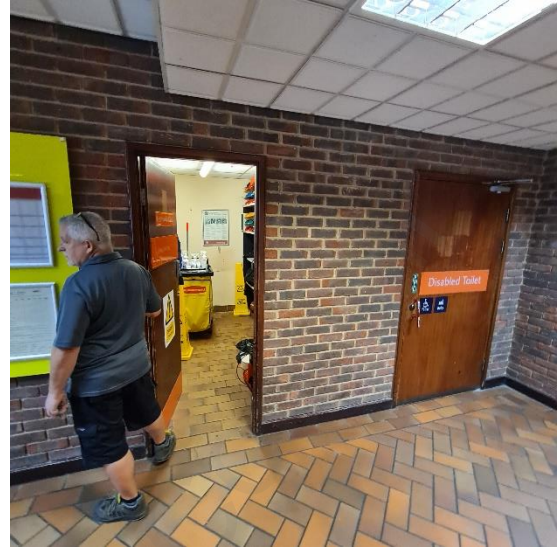


Figure 11: Cleaners cupboard off reception area



Figure 12: Exposed wood fibre soffit in cleaners cupboard

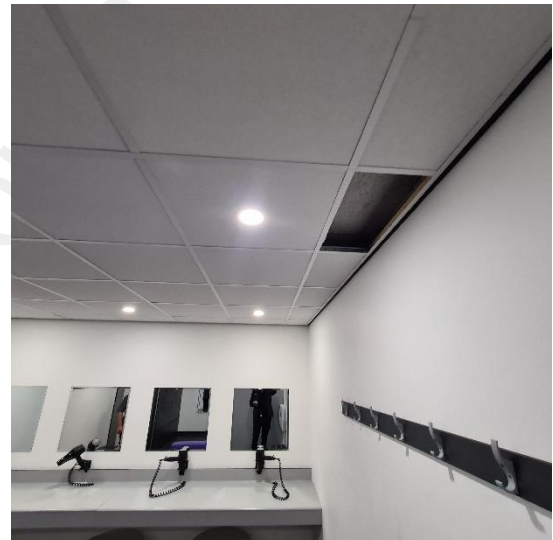


Figure 13: Exposed roof slab soffit in dry change



Figure 14: Evidence of water damage to dry change ceiling



Figure 15: Evidence of water damage to office ceiling



Figure 16: Cracking to internal plaster finish of office external wall



Figure 17: Exposed roof slab soffit to sports changing rooms



Figure 18: Damage to exposed wood fibre soffit to sports changing rooms (1)



Figure 19: Damage to exposed wood fibre soffit to sports changing rooms (2)



Figure 20: Corrosion to steel rib of sports changing room roof slab soffit



Figure 21: Flat roof over original building area



Figure 22: Stepped and ramped access down to lower ground level of original building



Figure 23: Squash court 1



Figure 24: Squash court 2



Figure 25: Structural steel framing adjacent to courts 1 & 2



Figure 26: Cupboards adjacent to courts 1 & 2

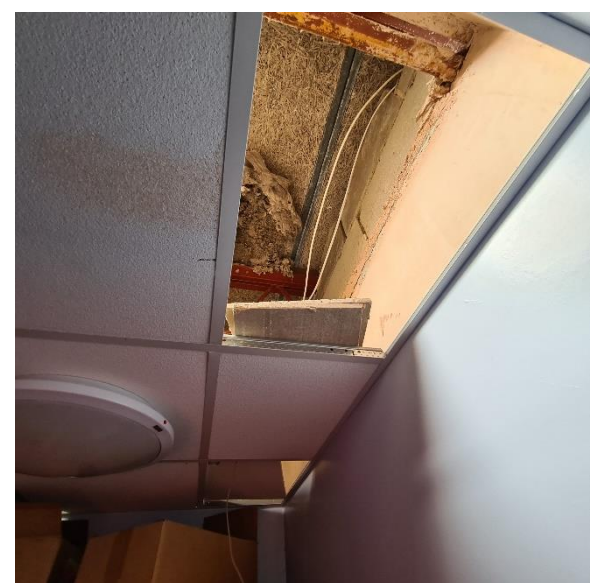


Figure 27: Exposed roof structure in cupboard adjacent to courts 1 & 2



Figure 28: Store room below squash courts 1 & 2



Figure 29: Suspended ground floor construction to squash courts 1 & 2



Figure 30: Exposed roof structure above squash courts 3 to 6

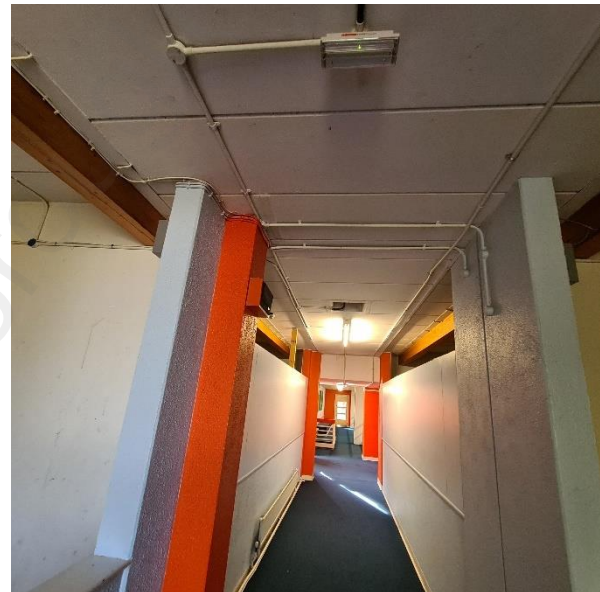


Figure 31: Exposed roof structure above corridor separating squash courts 3 to 6

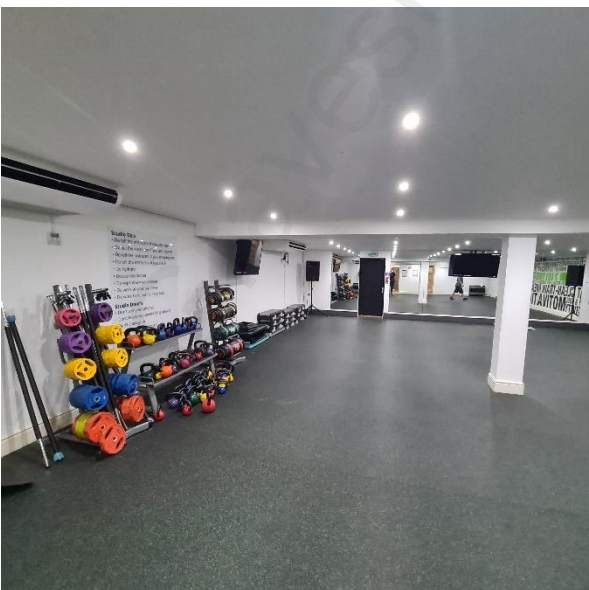


Figure 32: Studio below squash courts 3 to 6

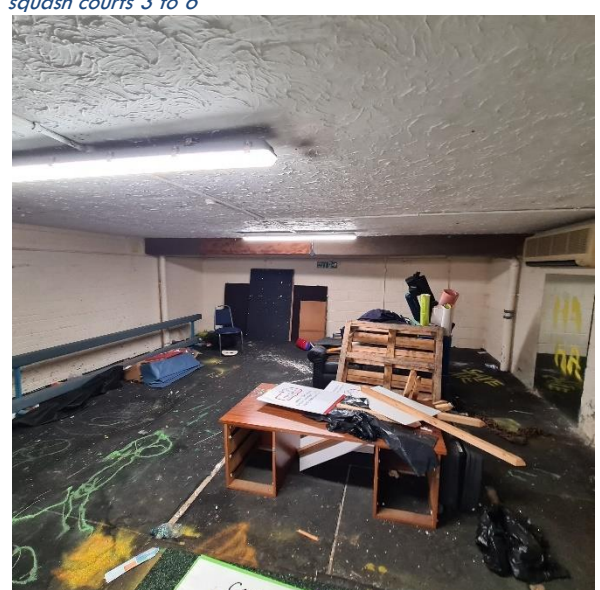


Figure 33: Store room below squash courts 3 to 6 (1)

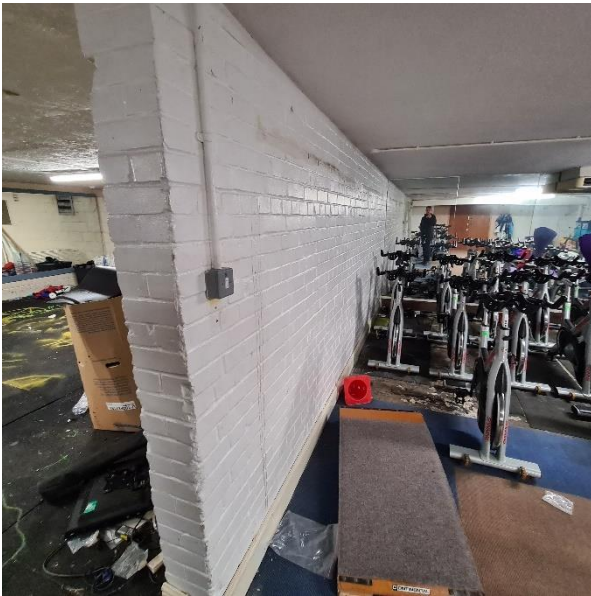


Figure 34: Store room below squash courts 3 to 6 (1)

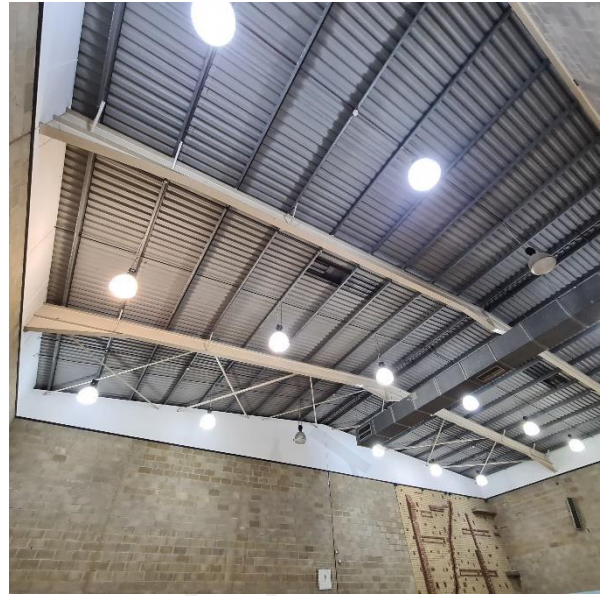


Figure 35: Sports Hall roof structure (1)

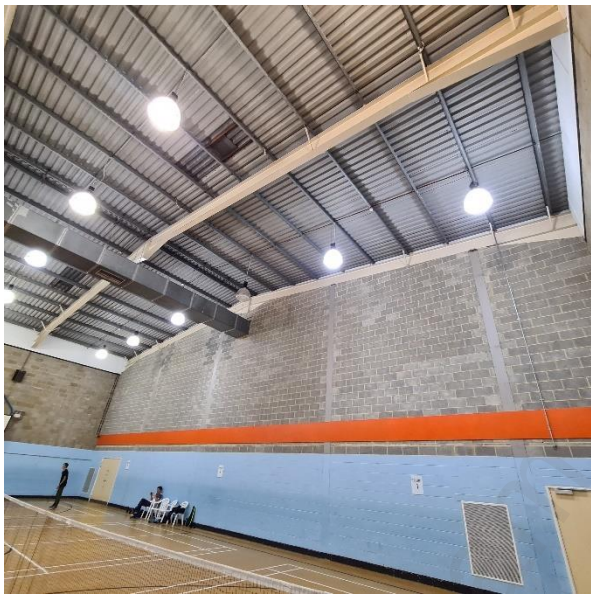


Figure 36: Sports Hall roof structure (2)

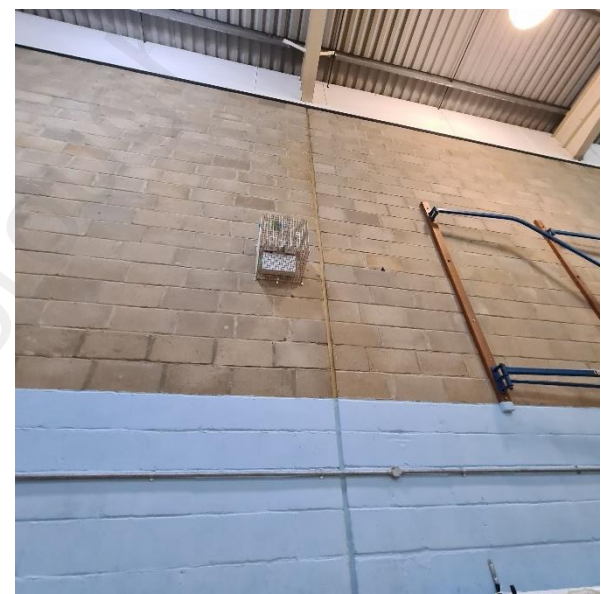


Figure 37: Sports Hall internal blockwork movement joint



Figure 38: Fitness studio entrance

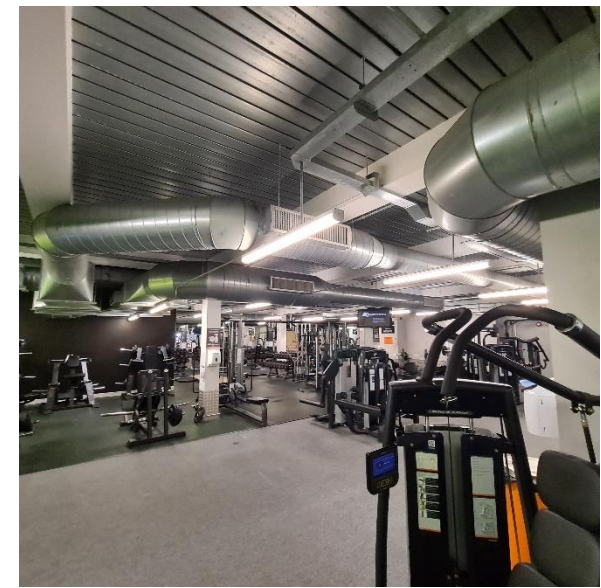


Figure 39: Ground floor fitness studio



Figure 40: First floor exposed structure soffit

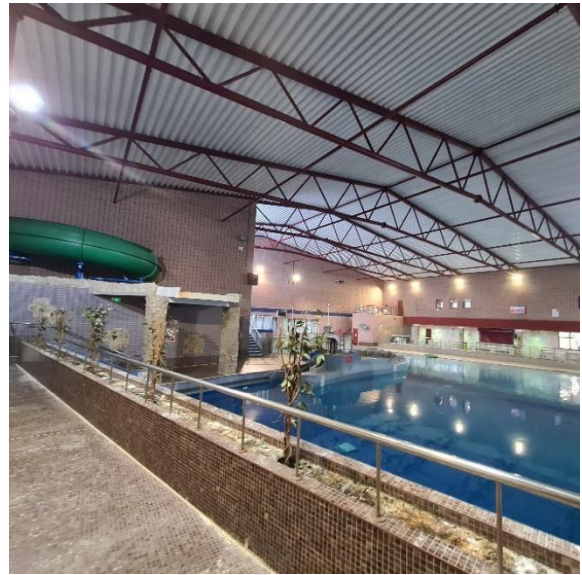


Figure 41: Pool hall exposed roof structure (1)

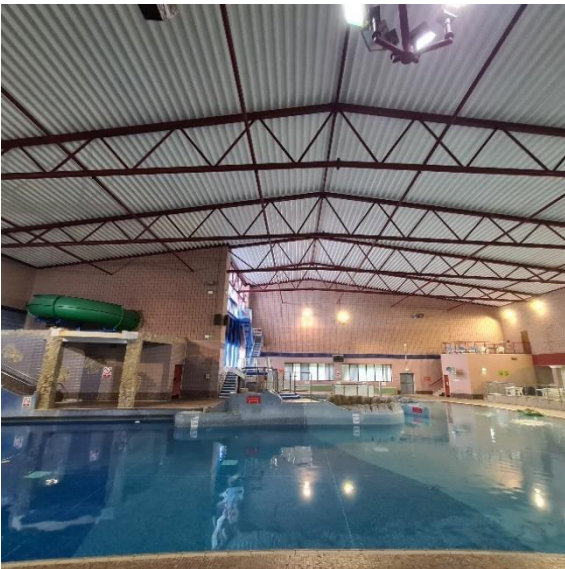


Figure 42: Pool hall exposed roof structure (2)



Figure 43: Pool hall exposed roof structure (3)



Figure 44: Pool hall exposed roof structure (4)



Figure 45: Corroded flume tower steelwork (1)



Figure 46: Corroded flume tower steelwork (2)



Figure 47: Corroded flume tower steelwork (3)

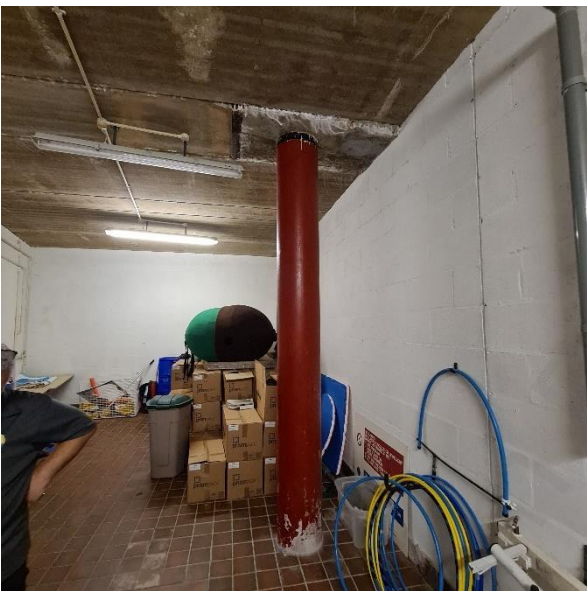


Figure 48: Exposed steel column in pool store



Figure 49: Corrosion to capping structure to pool store



Figure 50: Pool plant room

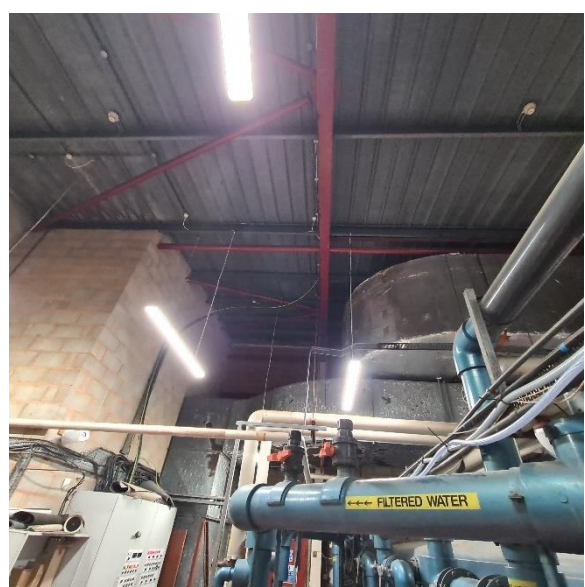


Figure 51: Pool plant room roof structure



Figure 52: Pool plant room exposed structure

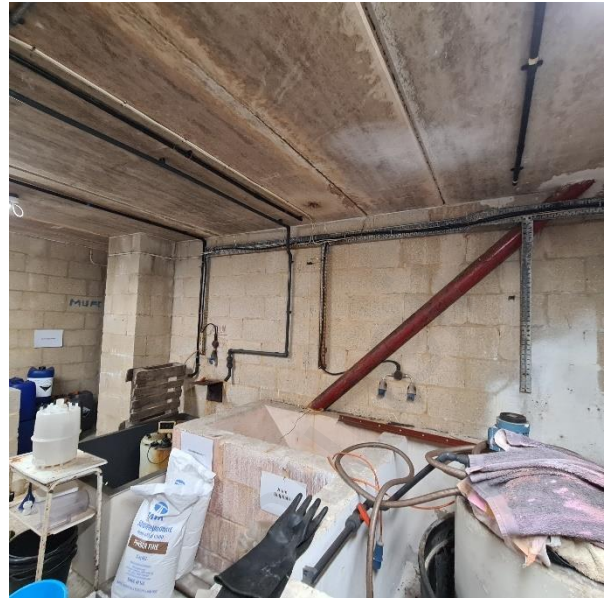


Figure 53: Corrosion to steel bracing in chemical store room



Figure 54: Corroded secondary steelwork in pool plant room

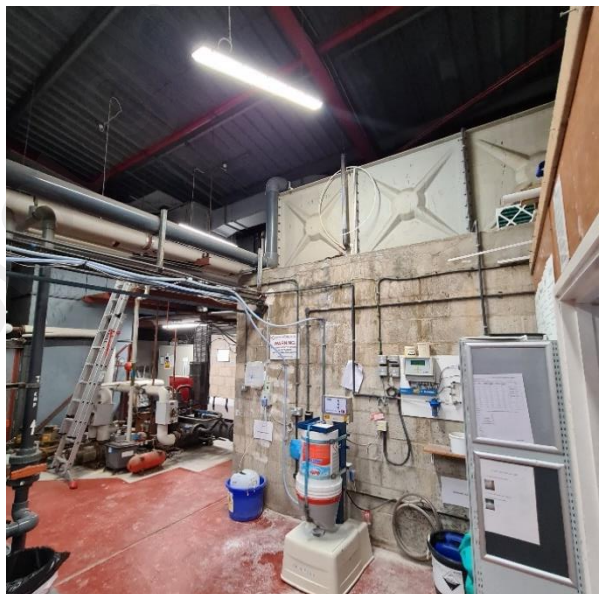


Figure 55: Pool plant room water tanks

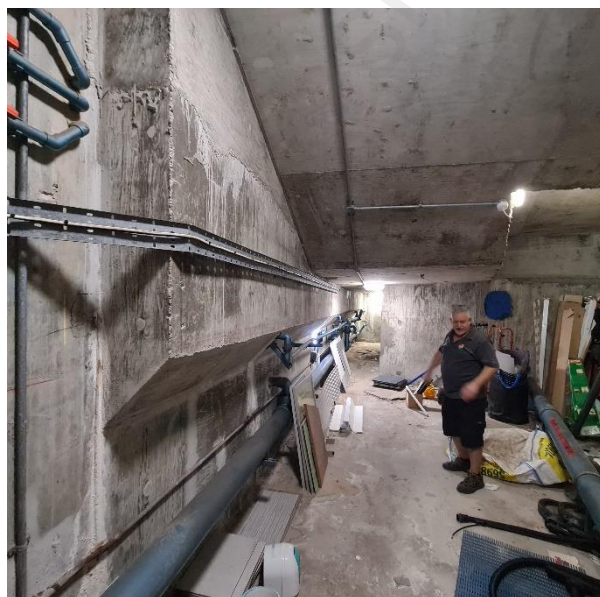


Figure 56: Pool undercroft exposed pool tank wall

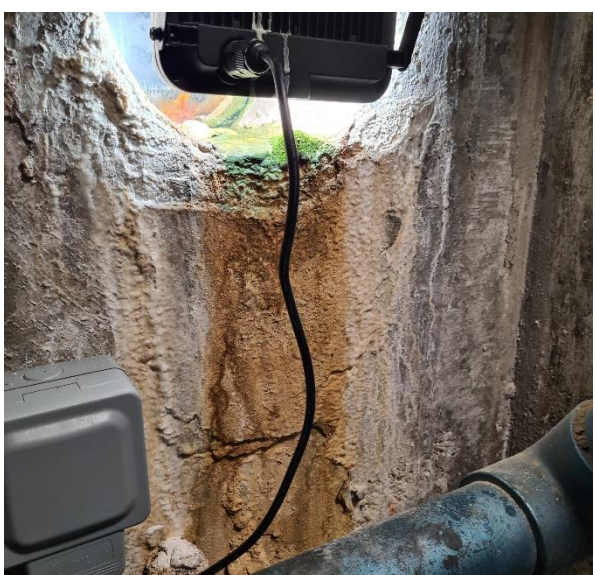


Figure 57: Damage to pool tank concrete due to water ingress through pool lights



Figure 58: Damaged undercroft concrete base slab (1)



Figure 59: Damaged undercroft concrete base slab (2)



Figure 60: Damaged undercroft concrete base slab (3)

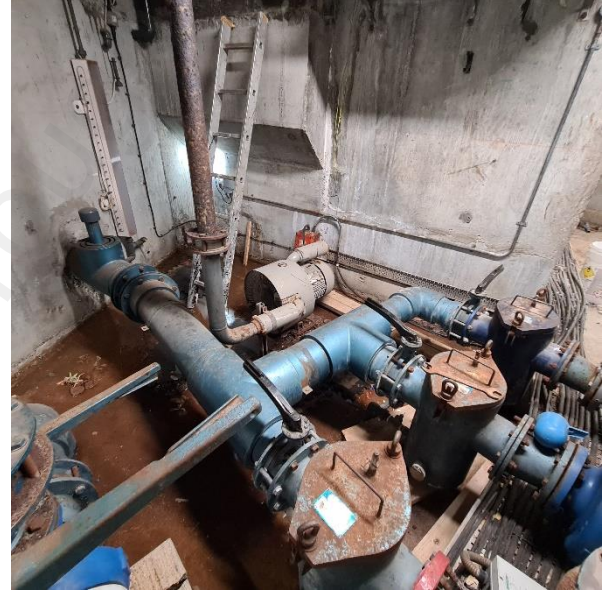


Figure 61: Undercroft pooled water beneath pipework



Figure 62: Undercroft damaged concrete plinths



Figure 63: Wet change area

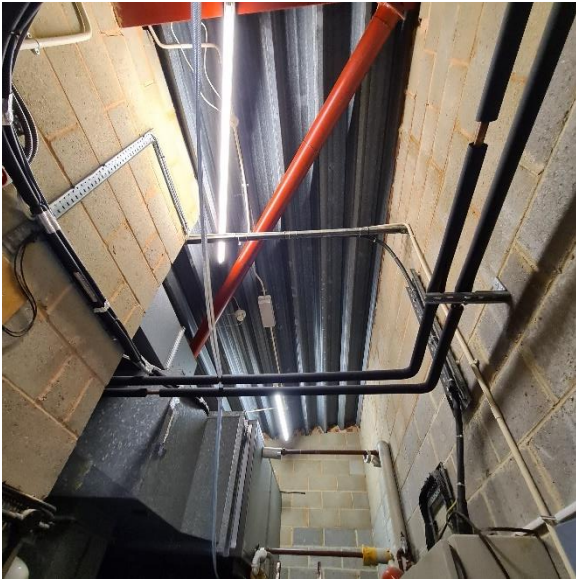


Figure 64: Exposed roof structure over upper level



Figure 65: First floor spa and sauna



Figure 66: Corroded steelwork adjacent to first floor spa



Figure 67: Ground floor store room



Figure 68: Exposed first floor structure soffit



Figure 69: South elevation of main entrance



Figure 70: South elevation of original building



Figure 71: South elevation of original building and sports hall



Figure 72: West elevation of sports hall



Figure 73: North elevation of sports hall and squash courts

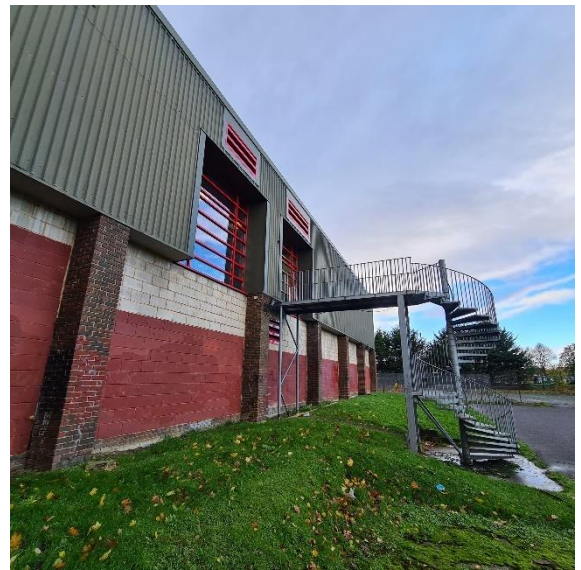


Figure 74: North elevation of sports hall



Figure 75: East elevation of squash courts with cracked render and damaged timber



Figure 76: North elevation of squash courts



Figure 77: West elevation of squash courts

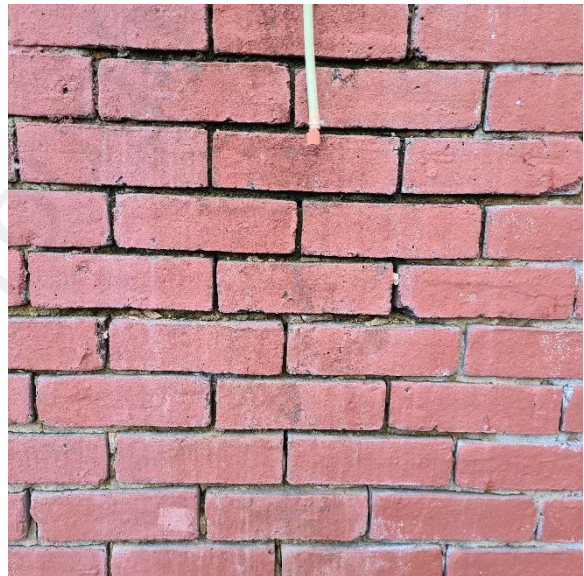


Figure 78: Mortar bed joint loss to squash court external brickwork (1)



Figure 79: Mortar bed joint loss to squash court external brickwork (2)



Figure 80: West elevation of pool hall and plant room



Figure 81: Damaged blockwork to west elevation of pool hall and plant room



Figure 82: North elevation of pool hall



Figure 83: East elevation of pool hall